

Assuming the diameter of Titan as 0".75—the value given independently by Schroeter, Mädler, and Struve—the density of the satellite would be about one-third that of the earth. Picking's diameter, deduced from photometric observations of the satellite on the assumption that its albedo was equal to that of the primary, would involve a density nearly four times that of the earth. It would seem clear, therefore, that Titan possesses a much greater density than Saturn, but that its surface is less highly reflective.

NAMES OF MINOR PLANETS.—Minor planet No. 276 has been named Adelheid, and No. 278 Paulina.

ASTRONOMICAL PHENOMENA FOR THE WEEK 1888 AUGUST 12-18.

(FOR the reckoning of time the civil day, commencing at Greenwich mean midnight, counting the hours on to 24, is here employed.)

At Greenwich on August 12

Sun rises, 4h. 43m.; souths, 12h. 4m. 43.8s.; sets, 19h. 26m.; right asc. on meridian, 9h. 30.2m.; decl. 14° 47' N. Sidereal Time at Sunset, 16h. 53m.

Moon (at First Quarter August 14, 17h.) rises, 10h. 14m.; souths, 16h. 8m.; sets, 21h. 49m.; right asc. on meridian, 13h. 34.5m.; decl. 4° 16' S.

Planet.	Rises.		Souths.		Sets.		Right asc. and declination on meridian.	
	h. m.		h. m.		h. m.		h. m.	
Mercury..	3 29	...	11 18	...	19 7	...	8 43.5	... 19 18 N.
Venus ...	5 29	...	12 41	...	19 53	...	10 6.4	... 13 11 N.
Mars ...	12 33	...	17 9	...	21 45	...	14 35.6	... 16 38 S.
Jupiter ...	13 50	...	18 13	...	22 36	...	15 40.0	... 18 50 S.
Saturn ...	3 51	...	11 31	...	19 11	...	8 56.4	... 18 1 N.
Uranus... 9 50	...	15 28	...	21 6	...	12 53.7	...	5 4 S.
Neptune..	22 50*	...	3 37	...	14 24	...	4 1.8	... 18 59 N.

* Indicates that the rising is that of the preceding evening.

ug.	h.	
13	21	...
14	4	...
15	0	...

Mars in conjunction with and 6° 49' south of the Moon.
Mercury in conjunction with and 0° 39' north of Saturn.
Jupiter in conjunction with and 4° 7' south of the Moon.

Variable Stars.

Star.	R.A.		Decl.	h. m.
	h. m.			
α Tauri...	3 54.5	...	12 10 N.	Aug. 12, 3 12 m
R Comæ ...	11 58.5	...	19 25 N.	16, 2 4 m
S Virginis ...	13 27.2	...	6 37 S.	12, m
δ Libræ ...	14 55.0	...	8 4 S.	16, 23 0 m
U Coronæ ...	15 13.6	...	32 3 N.	15, 23 35 m
U Ophiuchi...	17 10.9	...	1 20 N.	14, 2 2 m
R Scuti ...	18 41.5	...	5 50 S.	14, 22 10 m
β Lyræ... ..	18 46.0	...	33 14 N.	15, m
R Lyræ ...	18 51.9	...	43 48 N.	13, 3 0 m ₂
T Sagittarii...	19 9.8	...	17 10 S.	18, m
η Aquilæ ...	19 46.8	...	0 43 N.	12, m
S Sagittæ ...	19 50.9	...	16 20 N.	14, 2 0 m
X Cygni ...	20 39.0	...	35 11 N.	16, 23 0 m
T Vulpeculæ ...	20 46.7	...	27 50 N.	18, 2 0 m
δ Cephei ...	22 25.0	...	57 51 N.	12, 0 0 m
				15, 4 0 m
				18, 22 0 m

M signifies maximum; m minimum; m₂ secondary minimum.

Meteor-Showers.

	R.A.	Decl.	
Near γ Andromedæ ...	25	42 N.	Swift; streaks.
The Perseids ...	60	56 N.	" "
Near λ Persei ...	60	50 N.	" "
ζ Aurigæ ...	73	41 N.	" "
δ Draconis ...	290	70 N.	Swift; short.

THE SCIENTIFIC VALUE OF VOLAPÜK.

THE Committee appointed by the American Philosophical Society, on October 21, 1887, to examine into the scientific value of Volapük, presented the following Report at the meeting of the Society held on January 6, 1888:—

Your Committee proposes, first, to consider the desirability of a universal language; secondly, what should be its characteristics; and, thirdly, whether that invented by the Rev. Mr. Schleyer, called by him Volapük, meets the requirements.

I.—That in the vastly increased rapidity of interchange of thought in modern times, some general medium of intercommunication would be welcome, is unquestioned. Wherever there are close commercial relations between nations speaking different tongues, such media are sure to arise from the necessities of daily life. Thus, the Lingua Franca in the Mediterranean, and "pigeon English" in the Chinese ports, are dialects which have sprung out of the urgency of business needs. These mixed languages are called "jargons," and have a very high interest to the scientific linguist, as illustrating the principles of the evolution of human speech. The English language is a jargon of marked type, and illustrates what was stated by W. von Humboldt early in this century, that from such crossings and mingling of tongues are developed the most sinewy and picturesque examples of human language. This consideration shows that in adopting or framing a universal language we need not hesitate to mould it from quite diverse linguistic sources.

The presence of a number of these jargons in different parts of the world testifies to the desirability for some one simple form of discourse which could be of general adoption. Another and higher testimony to the same effect is the need now frequently and loudly expressed for a uniform terminology in the sciences. For many years it has been urged, both in this country and in Europe, that the neologisms required by the sciences be derived according to a uniform plan from the Greek, and that those heretofore obtained from Greek or Latin be brought into one general form. There is no practical difficulty about this except that which arises from the Chauvinism of some nations which are blinded by egotism or narrow notions to the welfare of the whole. Such a tendency is observable in Germany, a country once noted for its cosmopolitan sympathies. Its medical teachers, for example, have of late frequently dismissed the terms of their science derived from the Latin and Greek, in order to substitute in their place long, awkward, and inharmonious Teutonic compounds. No effort at a uniform international scientific terminology can be successful if the learned in each nation be governed by national prepossessions.

Another obstacle to a universal tongue, and which at the same time is a cogent argument for the adoption of one, is the sentimental love of local dialects and forms of speech by those who have imbibed them in infancy. To-day there are active Societies organized for the preservation of the Welsh, the Armorican, the Basque, the Finnish, and the Flemish. For many generations nearly all learned writings in Europe were in Latin. In the eighteenth century the Latin threatened to be superseded by the French. The Transactions of the Academy of Sciences of Berlin were in French; so were the articles by the Russian Professors; and in the earlier decades of the present century French prevailed in the Reports of the Royal Northern Society of Antiquaries, and in most scientific publications in Slavic and Northern Teutonic countries. This is the case no longer. Every little principality claims that it should print what it has to tell the world of science in its own dialect, and claims that the world of science should learn this dialect. Thus we have on the list of our scientific exchanges publications in Roumanian and Bohemian, in Icelandic and Basque, in Swedish and Hungarian, in Armenian and modern Greek, in Japanese and in Portuguese, without counting the more familiar tongues. Even a linguist by profession, such as Max Müller, has exclaimed against the very Babel, the confusion of tongues, which exists in modern scientific literature. He has sounded an earnest appeal to the learned writers of the world to express themselves in one of the half-dozen languages which every man of wide education is supposed to read—to wit, the English, French, German, Spanish, Italian, or Latin.

But even with the advantage of a well-developed international scientific terminology, it is a good deal to ask of a student of science that he should spend the time to acquire a reading knowledge of these six tongues. In many cases it is wholly impossible for lack of time. But time could always be

spared to learn one language, if that were enough, particularly if this one were exceptionally simple and easy in its grammar.

Again, the commercial and travelling world demands one tongue only, in addition of course to that which its members learn in infancy, a tongue facile to acquire, and adaptable to their peculiar wants. The time is not far off when one system of weights, measures, and coinage, one division of time, one code of international law, one mode of quarantine and sanitation, one costume, will prevail throughout the civilized world, and along with this unification of action must and will come a unification of speech. It is not only desirable, it is certain to arrive; and, as beings of intelligent self-consciousness, looking before as well as after, it becomes us to employ our faculties to direct the course of events so that this one universal language be not left to blind chance, but be framed and adopted of deliberate choice, and with the wisest consideration.

II.—Convinced, therefore, that the time is ripe for the promulgation of a general form of speech for the civilized members of the race, we will now inquire what should be the requirements of such a tongue to merit the recommendation of this Society.

We begin by the observation that the Aryan stock is now, and has been for 2000 years, the standard-bearer of the civilization of the world; hence, a universal language should be based upon the general linguistic principles of that stock. In the Aryan stock the six principal living tongues in the order of their importance and extent may be ranged as follows: English, French, German, Spanish, Italian, Russian. It should be the aim of the proposed general tongue to ally itself to these somewhat in the order noted, as thus being more readily acquired by the greater number of active workers in the world at the present time.

The elements of all languages arrange themselves to the linguist under three headings—phonetics, grammar, and lexicography; in other words, the vocal, the formal, and the material characteristics of the tongue; and under these three headings we will sketch the traits which should make the projected universal language.

(1) *Phonetics*.—We believe all will assent to the following propositions:—

The orthography of the universal language should be absolutely phonetic.

Every letter in it should always have the same sound.

This sound should be one common to all the leading Aryan languages, and hence present no difficulty to a person speaking any one of them.

Diphthongs, digraphs, and double consonants should all be omitted as misleading.

The meaning should never depend on tone, accent, quantity of vowels, nor rising and falling inflections of the voice. All these are inadequate and unnecessary expedients of the linguistic faculty.

The vowels should be limited to the five pure vowels: *a, e, i, o, u*, pronounced as in Italian, and all impure or modified vowel sounds, as the German *ä, ö, ü*, the French *u*, the English *u* (as in *use*), *o* (as in *not*), and the neutral vowel *u* (in *but*) should be discarded. All the Aryan tongues named possess the five pure vowels, but not all the impure and neutral vowels.

In the consonantal scheme all gutturals, aspirates, lisps, and nasals should be omitted. Thus, the German *ch*, soft or hard, the Spanish *z*, the English *h* and *th*, the French *x*; and likewise all double consonantal sounds, like the Spanish *ñ, ll, rr*, the German *kn, pf*, the Russian *schtsch*, the Italian *zz, cc*, &c., should find no place. Of all the Aryan languages the pure Castilian Spanish comes the nearest to such an ideal phoneticism, and it approaches very near indeed, a few consonantal heresies and the accent being its only drawbacks.

In the written alphabet of such a language there should be, and there would be no occasion for, any diacritical marks whatever. The so-called Latin or Roman handwriting and type should be employed, but with the omission of every sign which would require the writer to take his pen from the paper in the middle of a word, or else return to it in order to complete it. Hence the *i* should have no dot (as is the case in German), nor the *j*, and the *t* should not be crossed. No accents should be needed, and no apostrophes.

The sounds of the language should not only be easy, they should also be fairly agreeable to the ear; and combinations should be sedulously avoided which in any of the leading tongues have indecorous or degrading associations.

Brevity is of great importance, and each word should be reduced to its simplest discriminative sound, consistent with sonorousness and lucidity.

(2) *Lexicography*.—The vocabulary of the universal language should be based primarily on the vocabulary which is common to the leading Aryan tongues. There are 1500 words in German which are almost or quite the same in English; there are more than this number common to English, French, Italian, and Spanish. A selection should be made from these similar or identical word-forms as the foundation of the lexicon. At least a thousand words in common use will be found to be the same in all these languages, when we allow for the operation of simple and well-known phonetic laws. Let the learner be taught these laws, and he will at once know a good share of all the more usual terms of daily intercourse in this new language, and he will pronounce them correctly without a teacher, because it will contain no sound which is strange to his ears, and each word would be spelled as it is pronounced.

This existing common property of words, once assorted and presented in the orthography above set forth, would form one element of the lexicon; another will be those words obtained from an international scientific terminology, to be decided upon by the Committees of International Congresses, appointed for that purpose.

Commercial and business terms are already largely the same, and there would be little difficulty in obtaining a consensus of opinion about them which would prevail, because it is of direct pecuniary advantage to business men to have such a uniformity.

There remain the terms in art, literature, poetry, politics, imagination, &c., to be provided for. But in the opinion of this Committee it does not seem desirable at this time to urge the formation of a vocabulary which would be exhaustive. Much of it should be left to the needs of the future, as observed and guided by the International Committees who should have the care and direction of the universal tongue. These Committees should, by common consent, hold the same relation to it that the French Academy has, in theory at least, to the French language, enlarging and purifying it by constant and well-chosen additions. As in France, each writer would enjoy the privilege of introducing new terms, formed in accordance with the principles of the tongue, and such terms would be adopted or not, as they should recommend themselves to other writers in the same field.

(3) *Grammar*.—By far the greatest difficulty is presented by the formal or grammatical features of such a proposed tongue.

We may best approach this part of our task by considering how the grammatical categories, or "parts of speech," as they are called, are treated in the various Aryan tongues, and selecting the simplest treatment, take that as our standard.

It may indeed be inquired whether in the grammar we might not profitably pass beyond the Aryan group, and seek for simpler methods in the Semitic, Turanian, African, or American languages. But it is a sufficient answer to this to say that there is no linguistic process known to these remote stocks but has a parallel in some one of the Aryan dialects; and if such a process is very slightly developed in these dialects, this is probably the case because such a process has been found by experience to be unsuited to the modes of Aryan thought.

Returning to the grammatical categories or parts of speech, we find them usually classified as nine, to wit: articles, noun, pronoun, adjective, verb, adverb, preposition, conjunction, interjection.

The last of these, the interjection, is of no importance; and as for the first of them, the article, we find that the Latin and the Russian move along perfectly well without it, and hence we may dismiss it, whether article definite or article indefinite, as needless in the universal language.

The adjective in Latin has gender, number, and case, and in most living Aryan languages, has number and gender; but in English it has neither, and, therefore, true to the cardinal principles of economy in the formal portions of speech, in the universal language it should have neither. More than this, in colloquial English and German, and always in English in the comparative degree, there is no distinction between the adjective and the adverb; and upon this hint we perceive the inutility of the distinction and dismiss it as operose only. The comparison of adjectives should be by words equivalent to *more* and *most*, as is practically the case in the Romance languages, and never by comparative and superlative terminations, as in English and German, as our endeavour should always be to maintain the theme unchanged.

This reduces our nine parts of speech to six, which are proved to be enough, by the facts quoted.

The noun in German undergoes changes for gender, number, and case. Of these the gender in all Aryan tongues, except English and modern Persian, is an absurdity, without application to the object, and a most serious impediment to learners. Grammatical gender, therefore, should be absolutely dismissed, and material gender expressed by the feminine adjective of sex, as in English and most American languages (bear, she-bear, rat, she-rat, &c.).

The Greek has a singular, a dual, and a plural number. The dual has dropped out of modern tongues, and in many instances the plural is grammatical only and not material. Indeed, as in most American languages, so often in English and German, the plural form is not used even when the plural number is meant. Thus, we say, ten head of steers, six dozen herring, sechzehn Stück Cigarren, sechs Uhr Abends, &c. It is probable, therefore, that both gender and number could be usually dispensed with in nouns.

With regard to the case of nouns, it will be observed that the tendency of all the Teutonic and Romance languages has been to get rid of them: French and Spanish have succeeded completely; the English retains the genitive, the German the nominative, genitive, dative, and accusative, in some instances. The cases have been supplied by the use of pronouns and prepositions, and we shall be wise to respect this tendency as indicative of linguistic progress. It is historically clear that to attempt to restore the case-endings of nouns would be to steer directly against the current of linguistic evolution. There has even been an effort both in English and German to dispense with the genitive by substituting a possessive pronoun for the case-ending, as "John his book," "Ludwig sein Pferd"; while the Berlin dialect of the lower classes has often but one termination for both genitive and dative, where pure German has two.

The use of the possessive pronoun to indicate the genitive is simple and logical; it prevails in most American languages and most jargons; and is quite adapted to the end. In fact, some dialects, such as the French Creole of Trinidad, Martinique, and St. Thomas, contain no pronominal adjectives, and make out very well by placing the personal pronoun, like any other attributive case, after the noun, as *liv li*, "his book," literally, "book he." It might be queried whether the universal language would not gain in ease and simplicity by adopting this method of placement.

The dative, or *régime indirecte*, could be supplied in a similar manner by a pronoun in an oblique form. There is no necessity for more than two oblique cases of the pronoun, and they can be added to all nouns as a substitute for prepositions, when needed for clearness.

The pronouns of the modern tongues, and especially of their colloquial dialects, demonstrate that the relative, interrogative, and demonstrative forms can be blended without loss of lucidity. The German *der*, the English *that*, are both relative and demonstrative; the French *qui* and *ça* are both relative and interrogative in Creole.

The reflexive pronoun is used very unnecessarily in most modern Aryan tongues. There is no logical propriety in the French *Je me casse le bras*. The use of such a form should be greatly restricted.

The verb has tense and mood, number and person. It is conjugated in all Aryan languages, sometimes regularly, sometimes irregularly, and it has many forms. In studying its history, however, no one can overlook its steady tendency towards simplification of the form of the theme and the adoption of the periphrastic method of conjugation, or that by auxiliaries. By this process the verb loses all inflections and is reduced to a single form; person and number are expressed in the subject, tense, and mode by auxiliaries. This should be the process adopted by the universal language, with perhaps the exception that the simple past and future might be expressed by terminations, every verb being absolutely regular. The future termination is now lost in English and German, and even the past termination is often dispensed with in both tongues, as "I give," "I did give," "ich that geben"; but as both are vigorous in the cultivated Romance tongues, these formal elements might be conceded.

A very delicate question relates to the substantive verb "to be." Shall we omit it or express it? The Latin rarely introduces it, and there are numerous tongues in which it has no

equivalent. On the other hand, modern Aryan speech has developed it markedly; the Spanish has its *ser* and *estar*, the German its *sein* and *werden*, expressive of shades of meaning included in our verb "to be." This prominence of the expressions for existence seems to be connected with marked psychological advances, and a ripening self-consciousness, as has been lately set forth by a profound French critic of language, M. Raoul de la Grasserie. We should be inclined, therefore, to respect this expression, and allow it in a universal language the prominence it enjoys in most Aryan tongues of modern type.

The prepositions offer great difficulties in modern languages. The most of them can be omitted by making all verbs which have an active meaning govern their object directly, and have the direct object follow the verb and the indirect object placed later in the sentence. The phrase, "Give to the child a spoon," would be just as intelligible in the form "Give spoon child," if we remember that the direct precedes the indirect object.

The simplification of grammatical forms here proposed involves an equal simplification in syntax, and this is an enormous gain. But it involves also the loss of freedom of position, so conspicuous a feature in Latin, and by some so highly esteemed. But philosophically considered, this freedom of position is solely a rhetorical and artistic gain, not a logical superiority. Grammarians even of the classical tongues are perfectly aware that there is a fixed logical arrangement of words in a sentence, and this, and this alone, is the only arrangement which a universal language should adopt. This arrangement may be briefly given as follows: subject before predicate, noun before its adjective, verb or adjective before qualifying adverbs, immediate object before remote object. This is the logical course of thought, and should be the universal form of expression. It was a dubious advantage to the Greeks and Latins that their numerous inflections permitted them to disregard it.

Those languages which rely largely on position obtain rhetorical grace by a recognized value assigned to alterations of position; and this would apply equally to the scheme proposed.

Other questions will arise in the projecting of a universal language. Shall we adopt postpositions as well as prepositions? Shall we indicate inflections by internal vowel changes? Shall we have free recourse to affixes, suffixes, and infixes? Shall we postfix conjunctions, like the Latin? Shall we manufacture entirely new roots from which to form new words and derivatives?

To all these questions your committee replies with an emphatic negative. All such processes are contrary to the spirit which has pervaded the evolution of the Aryan languages for the last two thousand years, and their adoption would violate the indicated rules for the formation of a universal Aryan speech.

III. In applying the principles which have been above set forth to the creation of the Rev. Johann Martin Schleyer, we find something to praise and much to condemn in his attempt.

Mr. Schleyer first published a sketch of his proposed universal language in 1878, and the first edition of his grammar in 1880. It has been welcomed with applause in Germany, and efforts have been made with some success to introduce it into France, England, and America.

His scheme is evidently the result of conscientious labour and thought, and he manifests a just appreciation of the needs of the time; but unfortunately the theory of construction he has adopted is in conflict with the development of both the Teutonic and Romance languages, and full of difficulties to the learner.

Beginning with its phonetics, we find that he has retained the impure German modified vowels *ä, ö, ü*, the French *j* (*dsch*), as well as the aspirated *h* or rough breathing. He has eight vowels and nineteen consonants where five vowels and sixteen consonants should suffice; elsewhere he extends his alphabet to thirty-seven letters. He also introduces various diacritical marks indicating accent, tones, vocal inflection, and quantity, all of which we consider needless and obstructive. Double consonants are numerous, and the Volapük is both written and printed with underscoring and italic letters, necessary to facilitate its comprehension.¹

The lexicography is based largely on the English, about 40 per cent. of the words being taken from that tongue, with phonetic modifications. These modifications do not regard the other Aryan languages, and various sounds of the Volapük alphabet could not be pronounced by a member of any Aryan

¹ These remarks are based upon the seventh edition of Schleyer's "Mittlere Grammatik der Universalsprache Volapük." Konstanz, 1887.

nation without special oral teaching. This we regard as a fatal defect.

Moreover, many words are manufactured from entirely new radicals, capriciously, or even fantastically formed, and this we condemn.

The article is omitted, which is well; but the nouns are inflected through a genitive, dative, and accusative case, and a plural number. The signs of these cases are respectively *a, e, i*, and of the plural *s*.

Diminutives, comparatives, and superlatives are formed by prefixes and suffixes, and on the same plan adverbs are formed from adjectives, and adjectives from nouns. Thus, *silef*, silver; *silefik*, silvery; *silefikūm*, more silvery; *silefikūn*, most silvery; *silefiko*, silveryly. It will be observed that, while this process is not dissimilar to that once frequent in the Aryan stock, it is not analogous to that which the evolution of that stock indicates as its perfected form.

In the conjugation the subject follows the verb, *bin—ob*, I am; where *bin* = am, *ob* = I. This we object to as contrary to the logical arrangement of the proposition. We are surprised to see the German third person plural (*Sie*) retained by the author as a "courteous" form. It should be the first duty of a universal language to reject such national solecisms.

The tense is indicated by prefixes *a, e, i* for the imperfect, perfect, and pluperfect active, *o* and *u* for the two futures.

The passive voice has the prefix *p*, the subjunctive by the suffix *la*, the optative and imperative by the suffix *ös*, the infinitive by the suffix *ön*. Abstracts are formed by adding *ül*, as *mon*, money; *monül*, love of money, avarice. These suffixes are to be placed in fixed relations to the root, and hence often become infixes.

The excessive multiplication of forms lends to Volapük an appearance totally un-Aryan. The verbal theme is modified by sixteen suffixes and fourteen prefixes. There are a "durative" tense, and a "jus-ive" mood, conjunctive, optative, gerund, and supine forms, all indicated by added syllables, reminding one of the overloaded themes of Turanian tongues. This mechanism is not only superfluous, but if any lesson may be learned from the history of articulate speech, it is precisely the opposite to what the universal language should and must be.

The meaning is largely derived from placement, as will be seen in the following example, in which *gudikos* is the neuter adverbial noun "goodness," *das Gute*; *plidos*, from English "please," the third singular indicative.

Gudikös plidös Göt.

Goodness pleases God.

Plidos Gode gudik.

It pleases God the good (the good God).

Plidös gudik Gode.

It pleases well God.

And so on. It is acknowledged by the author that obscurities may easily arise from these transpositions, and there is much dependence on accents and tones.

From this brief comparative examination of the evolutionary tendencies of the Aryan tongues and the scheme of a universal language as offered in the works of Mr. Schleyer, it is plainly evident that the two are in absolute opposition.

Volapük is synthetic and complex; all modern dialects become more and more analytic and grammatically simple; the formal elements of Volapük are those long since discarded as outgrown by Aryan speech; its phonetics are strange in parts to every Aryan; portions of its vocabulary are made up for the occasion; and its expressions involve unavoidable obscurities. With an ardent wish for the formation and adoption of such a universal tongue, and convinced as we are that now is the time ripe for its reception, we cannot recommend Volapük as that which is suited to the needs of modern thought. On the contrary, it seems to us a distinct retrogression in linguistic progress. Nor in this day of combined activities does it appear to us likely that any one individual can so appreciate the needs of civilized nations as to frame a tongue to suit them all. Such a task should be confided to an International Committee from the six or seven leading Aryan nationalities.

In conclusion, your Committee would respectfully suggest that it would eminently befit the high position and long-established reputation for learning of the American Philosophical Society, to take action in this matter, without delay, and to send an official proposition to the learned Societies of the world to unite in an International Committee to devise a universal language for business, epistolary, conversational, and scientific purposes. As the time once was when the ancestors of all Aryans spoke the

same tongue, so we believe that the period is now near when once again a unity of speech can be established, and this speech become that of man everywhere in the civilized world for the purposes herein set forth.

Your Committee therefore offers the following resolution—

Resolved,—That the President of the American Philosophical Society be requested to inclose a copy of this Report to all learned bodies with which the Society is in official relations, and to such other Societies and individuals as he may deem proper, with a letter asking their co-operation in perfecting an international scientific terminology, and also a language for learned, commercial, and ordinary intercourse, based on the Aryan vocabulary and grammar in their simplest forms; and to that end proposing an International Congress, the first meeting of which shall be held in London or Paris.

D. G. BRINTON, *Chairman*, }
HENRY PHILLIPS, JUN., } *Committee*.
MUNROE B. SNYDER, }

The following Supplementary Report was also read on the same occasion:—

The former Report having been recommitted, your Committee avails itself of the opportunity to explain more clearly the aim of the previous paper, to meet some of the objections offered against particular statements, and, at the request of several members, to enlarge the scope of the Report, so as to embrace a brief consideration of the two other universal languages recently urged upon the public, the "Pasilengua" of Steiner, and the "international language" of Samenhof.

The aim of the Committee was strongly to urge the desirability of taking immediate steps to establish a universal language, both for learned and general purposes. These steps, it asseverated, should be taken by the learned world as a body; the form of language adopted should be indorsed by the scientific Societies of all nations; by their recommendation it should be introduced into schools and Universities, and competent private teachers would soon make it familiar to all who would have occasion to use it. The Report distinctly states that it is in nowise expected that this international language will supplant any existing native tongue. It is to be learned *in addition* to the native tongue, and not *in place* of it.

The aim of the grammatical portion of the Report was simply to maintain three theses: first, that the pronunciation of the proposed tongue should be so simple that it could be learned by anyone speaking an Aryan language, without the necessity of oral instruction; secondly, that its grammar should be simplified to the utmost; and thirdly, that its lexicon should be based on the large common property of words in the Aryan tongues.

Your Committee repeats and insists that these are the indispensable requisites to any such proposed international tongue. It does not insist that the individual suggestions and recommendations contained in the Report should be urged at all hazards. They were advanced rather as hints and illustrations, than as necessary conditions. Nevertheless, they were not offered hastily, and your Committee desires to refer to some of the main arguments advanced against them. This it is prepared for the better, through the complaisance of Profs. Seidensticker and Easton, who have forwarded to the Committee, at its request, abstracts of their remarks.

Both these very competent critics attack the principle of deducing the grammar of the proposed language from the latest evolution of Aryan speech, to wit, the jargons. Prof. Seidensticker accuses such a grammar of "poverty," and adds: "A higher organism is of necessity more complex than a lower one." Prof. Easton denies that the later is the better form; or, to use his own words, "that the change from an inflected to an analytic tongue marks an advance in psychologic apprehension."

These criticisms attack a fundamental thesis of your Committee, and as they doubtless express the views of very many, they must be met.

In our opinion, they rest upon a radical misconception of the whole process of linguistic evolution. The crucial test of the development of language is that the sentence shall express the thought intended to be conveyed, and *nothing more*. When this can be attained simply by the order of words in the sentence, without changes in those words, such changes are not merely useless, they are burdensome, and impede the mind. All paradigmatic inflections, whether of nouns, adjectives, or verbs, are relics of lower linguistic organization, of a barbaric condition of speech, and are thrown aside as useless lumber by the active

linguistic faculty in the evolution of jargons. Compare a simple Latin sentence from Cicero, with its translation into English, which is a jargon of marked type, and note how much is dropped, and with what judicious economy: "*Romanis equitibus literæ afferuntur*"—"Letters are brought to the Roman knights." One word here will serve to illustrate all. In Latin the speaker must think of the adjective *Romanis* as masculine, not feminine, or neuter; as plural, not singular; as a dative, not a nominative, accusative, or vocative form; as agreeing in all these points with the noun it qualifies; and finally, as of the first, and not of the second, third, or of some irregular declension. All this needless labour is saved in the English adjective *Roman* by the method of position or placement. And so it is with every other word in this sentence. The evidence, both from theory and from history, is conclusive that the progress of language, linguistic evolution, means the rejection of all paradigms and inflections, and the specialization of the process of placement.

Prof. Easton maintains that this method (that of placement) "introduces an element of great difficulty into the language," and also doubts the acceptance of the logical order stated in the Report.

To the first of these objections the obvious answer is that the method of placement is that uniformly adopted in all jargons and mixed tongues, which is positive proof that it is the least difficult of any method of expressing relation. As to the logical order referred to by the Committee, it is surprising that any exception should be taken to it, as it is that stated in the common classical text-books.

Some related minor points remain to be noticed. In opposing vocal inflection, signs, and accents, in their Report, the Committee referred only to the written, not to the spoken language. The phonetic formation proposed is insisted upon only to the extent that no sound should be introduced which would be strange to the six leading Aryan languages. The substitution of placement for prepositions, which they recommended, was meant as illustrative merely. The particular statement that the Berlin dialect (of the lower class) has but one termination for both genitive and dative is upon the authority of Dr. and Mrs. Seler, of Berlin, the former a professed linguist, the latter born and raised in that city. The question whether, in the German expression, *sechs Uhr Abends*, the word *Uhr* is a singular form with a plural meaning, is contradicted by Prof. Seidensticker; but, in view of the strictly analogous Spanish expression, *las seis horas de la tarde*, the Committee maintains its original opinion.

Passing from these specific animadversions, there were some general objections which should be answered. Various speakers maintained that the project of an international language is impossible of realization; others asserted that it was unnecessary; others that, even if realized, such a tongue could have no figurative or artistic wealth of resources.

To these strictures it is replied that within eight years Volapük is claimed to have acquired 100,000 students; within a month it has attracted attention all over the United States; within a week a number of German merchants have announced to their foreign correspondents that in future it will be used in their business communications. If this is the case with so imperfect a language, backed by no State, no learned body, not even by the name of any distinguished scholar, what would be the progress of a tongue perfect in adaptation, and supported by all these aids to its introduction? In a decade it would be current among 10,000,000 people. That it would be barren in figurative meanings, or sterile in the expression of the loftier sentiments, is inconceivable, because, formed though it would be of deliberate purpose, the inherent, ever-active linguistic faculty of the race would at once seize upon it, enrich it, mould it, and adapt it to all the wants of man, to the expression of all his loves and hates, his passions and hopes.

Your Committee closes with a reference to the remaining two tongues now claimants for universal adoption.

The "*Pasilengua*" (*Gemeinsprache*, "Tongue of All") was introduced by P. Steiner, in 1885, with a small grammar and dictionary, published in German. The "international language" of Dr. L. Samenhof, of Warsaw, is an arrival of the present year, and is explained by him in a small volume, issued in French, in his native city, under the pseudonym of "Dr. Esperanto."

Both these have pursued the correct path in the formation of their vocabulary; they both proceed on the plan of collecting all words common to the Aryan languages, changing their form as little as possible consistently with reducing them to an agreeable

phoneticism, and when the same word has acquired diverse significations, selecting that which has the broadest acceptance. The plan of Dr. Samenhof is especially to be recommended in this respect, and may be offered as an excellent example of sound judgment. It is remarkable, and remarkably pleasant, to see how easy it is to acquire the vocabulary of either of these writers, and this is forcible testimony how facile it would be to secure an ample and sonorous stock of words, practically familiar to us already, for the proposed universal tongue.

Unfortunately, the alphabets of both employ various diacritical marks and introduce certain sounds not universal to the leading Aryan tongues. These blemishes could, however, be removed without much difficulty.

It is chiefly in the grammar that both err from the principles strenuously advocated by your present Committee. The *Pasilengua* has an article with three genders, *to, ta, te*, corresponding to the German *der, die, das*; it has also three case-endings to the noun, besides the nominative form, which itself changes for singular and plural, masculine and feminine. In the verb the tenses are formed by suffixes, six for the indicative, four for the subjunctive; while a number of other suffixes indicate participles, gerunds, imperatives, &c.

In the same manner, Dr. Samenhof expresses the relation of the elements of the proposition in the sentence "by introducing prefixes and suffixes." "All the varying grammatical forms, the mutual relation of words to each other, are expressed by the union of invariable words" ("*Langue Internationale*," p. 13). He acknowledges that this is "wholly foreign to the construction of European [he means Aryan] languages," but claims that it yields a grammar of such marvellous simplicity that the whole of it could be learned in one hour. In reality, it is what is known to linguists as the agglutinative process, and is found in the Ural-Altaic tongues, in high perfection.

It will be seen at once that the grammatical theories of both these tongues are directly in opposition to that advocated in the present and the previous Reports. These are both distinct retrogressions to an earlier, less developed, and more cumbersome form of language than that which dispenses with paradigms and inflections of all kinds.

Nevertheless, these repeated efforts go to show that an international language is needed, that it is asked for, that it is coming, and justify the propriety of this Society, which, as far back as the second decade of this century, marked itself as a leader in linguistic science, taking the van in this important and living question.

After discussion, during which amendments to the resolution originally proposed by the Committee were offered by Prof. Cope and Mr. Dudley, the Society adopted the following resolution by a unanimous vote—

Resolved,—That the President of the American Philosophical Society be requested to address a letter to all learned bodies with which this Society is in official relations, and to such other Societies and individuals as he may deem proper, asking their co-operation in perfecting a language for learned and commercial purposes based on the Aryan vocabulary and grammar in their simplest forms; and to that end proposing an International Congress, the first meeting of which shall be held in London or Paris.

THE LICK OBSERVATORY.

WE reprint from the *Daily Alta California* the following extracts from a private letter from Prof. Holden to a gentleman in San Francisco, giving details regarding the first astronomical observations made at the Lick Observatory:—

"The Lick Observatory is beginning to present a very different appearance, both by night and by day, from the one it lately had during its period of construction. At night the windows which have been so long dark show the lamps of the astronomers gleaming through them. The shutters of the observing slits are open, and the various instruments are pointed through them at the sky. The actual work of observing has begun, and the purpose for which the Observatory was founded—to be 'useful in promoting science'—is in the way of being accomplished. Prof. Schaeberle, late of Ann Arbor, has commenced the long task which has been assigned to him—namely, to fix with the very highest degree of precision possible to modern science, the position of the 'fundamental stars' with the Repsold meridian circle. The time-service for railway use is now conducted by